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Guidance

Electricity Interconnectors Cost Assessment Guidance Document

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This document is for stakeholders who want to understand the role that cost assessment plays in the electricity interconnector cap and floor regime in Great Britain.

It explains the processes that we follow whilst undertaking the cost assessments of electricity interconnectors and provides guidance to interconnector developers on how to prepare cost submissions for our review.

Contents

Executive Summary

We have produced this document to inform all interested parties of our approach to cost assessment for electricity interconnectors ("interconnectors"). This is our first document that sets out specific guidance on cost assessment for interconnectors. However, this guidance should be read alongside our existing policy guidance for the cap and floor regime, our project-specific assessment decisions and interconnector licence conditions. In the case of any inconsistencies, the provisions in our decisions or licences will take priority. This guidance aligns with many of the same principles that we follow in our published guidance for offshore electricity transmission cost assessment.[1]

This guidance document has been produced to assist current and prospective interconnector developers ("developers") in their understanding of the interconnector cost assessment process, the key issues that have arisen to date and our approach to such issues.

This guidance is relevant to both ongoing and future cost assessments. We intend to keep this guidance and our general approach to cost assessment under review to ensure alignment with policy developments and to deal with project-specific issues as they arise. We will continue to engage with stakeholders to ensure this guidance remains fit for purpose.

[1] Offshore Transmission: Guidance for Cost Assessment

1. Introduction

Context

1.1. Interconnectors are physical links which allow electricity to flow across borders. Interconnectors enable the trade of energy into and out of the Great Britain (GB) market which can result in lower electricity bills and greater security of supply within GB. In addition, they can enhance the European energy market and enable the efficient integration of new renewable energy sources and, as a result, facilitate decarbonisation.

1.2. The cap and floor regime is the regulated route for interconnector development in GB. It sets a minimum and maximum return that interconnector developers can earn.

1.3. The floor is the minimum amount of revenue that an interconnector can earn. This means that, if an interconnector does not receive enough revenue from its operations, its revenue will be 'topped up' to the floor by the GB system operator (National Grid ESO, "NGESO")[2], which will in turn recover the sum from transmission charges applied to all users of the national electricity transmission system. Ultimately, this means that consumers are underwriting the risk that interconnector developers are unable to generate sufficient revenues to pay for their investment.

1.4. The cap is the maximum amount of revenue for an interconnector. This means that, should an interconnector's revenue exceed the cap, the interconnector will transfer the excess revenue to NGESO, which will in turn reduce transmission charges. For consumers, the cap on revenues provides benefits in return for their exposure in underwriting the floor.

1.5. At Ofgem, our role is to decide whether granting a cap and floor regime to an interconnector project is likely to be in the interests of GB consumers. If so, we then set the appropriate cap and floor levels, and regulate and monitor projects under the regime.

1.6. The cap and floor levels are built up from a number of factors, including the cost of the project in question. In order to ensure a project is provided with appropriate cap and floor levels, we must ensure that the project costs are economic and efficient. Therefore, we undertake a thorough assessment of the project's costs, ensuring that only economic and

[2] Eligibility for any floor payments is subject to meeting minimum requirements related to availability.

efficient costs associated with the development, construction and operation of the project contribute to the project's cap and floor levels.

1.7. The details of this assessment are discussed within this guidance document.

Related publications

- Decision on the Final Project Assessment of the Viking Link interconnector to Denmark (September 2020)
- Decision on the Post Construction Review of the Nemo Link interconnector to Belgium (December 2019)
- Final Project Assessment of the IFA2 interconnector to France (July 2018)
- Decision on the Final Project Assessment of the NSL interconnector (July 2017)
- Decision on the cap and floor regime for the GB-Belgium interconnector project Nemo (December 2014)
- Offshore Transmission: Guidance for Cost Assessment (latest version at time of publication: April 2019)

Your feedback

General feedback

1.8. We believe that consultation is at the heart of good policy development. We are keen to receive your comments about this guidance. We'd also like to get your answers to these questions:

1. Do you have any comments about the overall quality of this guidance?
2. Do you have any comments about its tone and content?
3. Was it easy to read and understand? Or could it have been better written?
4. Any further comments?

Please send any general feedback comments to NTImailbox@ofgem.gov.uk

2. The Cost Assessment Process

Section Summary

This section provides an overview of the various stages of the interconnector cost assessment process.

Purpose of the cost assessment

2.1. For Ofgem to determine the cap and floor levels for an interconnector project, we are required to take account of a number of factors including the cost of the project in question. The purpose of the cost assessment is to ensure that only economic and efficient project costs will inform the project's cap and floor levels.

2.2. We do this by assessing the project's main procurement processes, to make sure they are transparent and efficient, and by undertaking a detailed review of the project's costs to establish whether they are economic and efficient. Any cost adjustments applied during the cost assessment exercise directly impact the final cap and floor levels for the project. The purpose of this guidance document is to inform developers and other interested parties of Ofgem's approach to the cost assessment process.

Overview of the cost assessment process

2.3. There are three main stages to our cap and floor regime assessment framework – the Initial Project Assessment ("IPA"), the Final Project Assessment ("FPA") and the Post Construction Review ("PCR"). These main stages are supported by annual reporting, which takes place between the FPA and PCR stages, and are followed post-construction by annual operational reporting. The sections below highlight the cost-related aspects of each stage.[3] Details on format and requirements for cost-related document submissions can be found in Appendix 1.

[3] For wider non-cost related aspects of our cap and floor assessment framework, please see associated cap and floor regime design and policy documents at https://www.ofgem.gov.uk/electricity/transmission-networks/electricity-interconnectors

2.4. The IPA stage is where we consider the 'needs case' for the project (i.e. the benefits the project provides to GB consumers and other stakeholders). At this stage, we accept applications during 'windows' and assess several projects together to ensure that interactions between projects are understood and taken into account in our decision-making. At this point, we carry out an initial high-level sense-check of the developer's early estimates of the project costs.

2.5. The FPA stage is where we consider the efficiency of the costs presented by the developer and determine the preliminary cap and floor levels. In doing so, we also make our final decision on whether to grant a cap and floor regime to the project. This assessment focuses on the development and capital costs presented by the developer. Depending on the maturity of the costs, we may also undertake a detailed assessment of the project's post-construction costs.[4]

2.6. Following the FPA stage, and throughout the construction period, the developers are required to submit annual reports detailing construction progress and costs. This reporting must be in line with the regulatory instructions and guidance (RIGs), issued by us.[5] We will endeavour to undertake an initial assessment of these reports and cost updates following their submission to us. However, we do not take a final view during these assessments. The aim of the assessments is to inform our PCR.

2.7. The PCR stage is where we set the project's final cap and floor levels. This is based on our final assessment of any eligible cost changes since our FPA, as well as our final assessment of any cost items for which we did not provide a firm allowance at the FPA stage.

2.8. Once the interconnector has begun commercial operations, the developer is required to submit operational submissions to us, in line with our RIGs. Whilst the primary focus of the operational reporting is revenues earned by the interconnector, we also undertake an assessment of specific costs as and when this is required, most notably as a result of specific reopeners that may have been triggered. Figure 1 provides an overview of the cost assessment stages.

[4] In this document, 'post-construction costs' refers to operational expenditure (opex), replacement costs and decommissioning costs.
[5] These documents can be found alongside this guidance document on the Ofgem website.

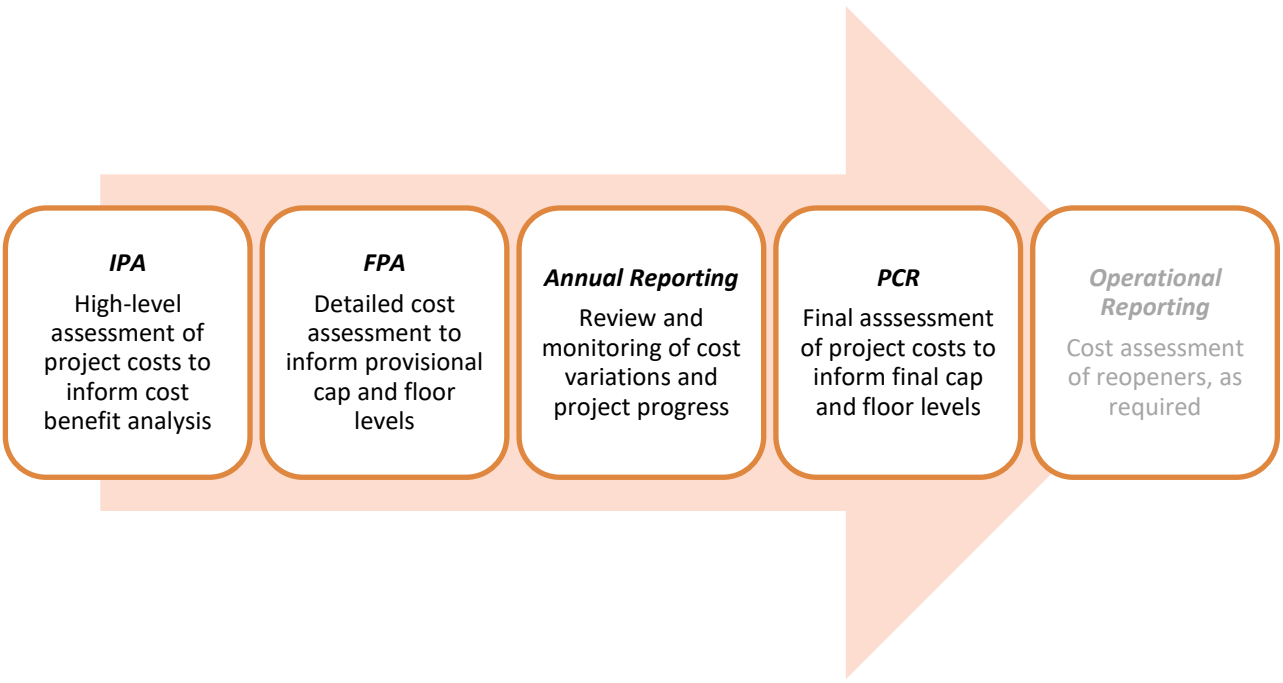

Figure 1 - Overview of cost assessment stages

Initial Project Assessment (IPA)

2.9. During the IPA stage, we undertake a detailed cost benefit analysis for the project(s) in question with the aim of understanding how the project(s) will impact GB consumers, GB producers and GB as a whole. We consult on our assessment and make a decision on the needs case for the project(s), granting the project(s) a cap and floor regime in principle, if appropriate.

2.10. The focus of this stage is on the project's needs case, and not on the efficiency of the forecast costs. From a cost assessment perspective, we concentrate on the robustness and accuracy of each IPA submission, and may also engage with the developer to better understand some aspects of the submission.

2.11. We do not require a particularly granular breakdown of costs at the IPA stage; prospective developers are required to submit high level cost projections for devex, capex and post-construction costs. However, we can engage with interested developer(s) in the months leading up to any IPA submission to ensure that the cost data is submitted in line with our expectations.

Final Project Assessment (FPA)

Overview and purpose

2.12. The FPA stage is the point at which we confirm the grant of a cap and floor regime. The project-specific FPA process involves a number of aspects: a review of progress against the conditions attached to our prior IPA decision, a cost assessment, a technical review, the calculation of the project's availability incentive and the ongoing review and update of the cap and floor financial model 1 (CFFM1).[6]

2.13. In order to ensure that the provisional cap and floor levels are as accurate as possible, a thorough cost assessment needs to be undertaken during the FPA stage. We do this by assessing the developer's submitted costs, with a particular focus on costs with a high level of maturity, which typically include development expenditure (devex) and capital expenditure (capex). If there is cost information of sufficient maturity available to us on the project's post-construction costs, we will endeavour to review and provide, as firm as possible, an allowance for these costs. Otherwise, we may provide a provisional allowance for these costs at this stage and review these costs in detail at the PCR.

2.14. Our cost assessment process at the FPA focuses on reviewing the project's procurement processes and scrutinising the costs submitted by the developer. When scrutinising the project's costs, we compare submitted costs against benchmarks. These benchmarks derive from data on historical interconnector projects, as well as from costs from projects of a similar nature, such as offshore transmission projects and relevant onshore transmission projects. We may employ technical consultants to assist us in assessing the appropriateness of the proposed or incurred costs.

2.15. Once we have determined our provisional view on the economic and efficient costs for the project, the cap and floor levels are derived by confirming the outstanding technical and financial parameters for the project and by applying these cost allowances to the project's CFFM1.

[6] The CFFM1 is a Microsoft Excel based financial model that is used to determine, for any interconnector granted the cap and floor regime: (1) the preliminary notional cap and floor levels at the FPA stage; and (2) the final notional cap and floor levels, and resulting Post Construction Adjustment (PCA) to the preliminary cap and floor levels, at the PCR stage.

2.16. In order to ensure that the FPA process runs as smoothly and as efficiently as possible, we expect the FPA cost submission from the developer to:

2.16.1. be significantly more mature and detailed than the IPA cost submission;

2.16.2. highlight any significant deviations from the IPA cost submission, with an explanation for these;

2.16.3. contain evidence-based project costs;

2.16.4. identify any additional changes, which are not related to cost and may affect the FPA assessment, such as project technical specifications (e.g. project capacity); and

2.16.5. contain information submitted during the IPA stage such as technical project specifications which is relevant to our cost assessment.[7]

The FPA process

2.17. As a guide for developers, we expect our FPA process to include the following aspects.

2.18. *Developer engagement* - discussions between the developer and Ofgem will be held throughout the FPA process to ensure that we understand the rationale behind the submitted costs, as well as the project's scheduled activities. This also provides transparency to the developer and ensures that they are aware of our reasoning if, and when, we make any adjustments to their submitted costs. We would also encourage developers to engage with us in the months leading up to their FPA submission to ensure that the submission we receive is of the quality that we expect.

2.19. *Initial review* – an initial review of the FPA submission to ensure the necessary information has been provided by the developer. If we believe that the developer has not provided all of the information that we requested, we will engage with them to ensure that we receive all relevant information needed for us to complete our review.

[7] For clarity, we do not require a resubmission of the project's cost benefit analysis.

2.20. *Full information review, including Supplementary Questions (SQs)* – once we are satisfied with the developer's submission, we will undertake a thorough review of the project's costs, alongside its technical characteristics. This will include comparing the project's costs to other projects, as well as multiple rounds of SQs. The purpose of the SQ process is to capture any clarifications sought by us on project-specific issues to ensure a clear and complete basis for our assessment. This is a key stage in the FPA process.

2.21. *Public consultation process* – as set out in our November 2017 open letter,[8] we will consult at the FPA stage only if there are significant changes from the information we published at the IPA stage.[9] In situations where there are no significant changes, our default approach will be to engage bilaterally with the project developer during our FPA assessment, and then to publish our FPA decision without a public consultation. If we believe that a consultation is required, we will look for stakeholders' views on our proposed cost allowance for the project. Once our consultation has closed,[10] we will review all of the responses and take these into consideration before coming to our final decision on the project's FPA.

2.22. *FPA decision* – at the FPA decision stage, we will confirm, or not, the cap and floor that was awarded in principle at the IPA stage. In addition, at this stage, we will indicate the efficient cost allowances for the project and the resulting provisional cap and floor levels. We will publish a decision document containing all of this information and also clearly note any elements not reviewed in detail at the FPA that will be assessed at the PCR.

2.23. The above is an outline of the key aspects that we will consider as part of our FPA, but other aspects may be included, as appropriate.

2.24. We continue to offer flexibility in how we receive a project's FPA submission. A developer may either submit all of the information that we need as part of one comprehensive submission. Or, they may, subject to our prior agreement, provide us with a phased FPA submission, with updates provided to us in line with key milestones in the development of the project e.g. different stages of its main procurement process. We expect

[8] Open letter on procedural changes to our Final Project Assessment stage
[9] We would expect to consult in situations where: (i) project costs have materially increased; (ii) we think the expected impacts of the project have changed significantly since our IPA decision; (iii) the project has requested variations to the default regime design that we are minded to approve; (iv) the project does not meet the conditions that were attached to our IPA decisions; or (v) the project has otherwise changed significantly
[10] Our FPA consultations are likely to last between four and eight weeks.

developers to keep us informed regularly in the months leading up to their FPA submission so that we are clear on how we expect to receive the submission. We note that a phased FPA submission may result in a longer assessment period, compared to receiving all of the project's relevant information at once.

2.25. After completing our initial review of the project's submission, and once we are satisfied that we have all of the information that we need for our assessment, we will aim to publish our FPA decision within six to nine months.

2.26. Once we have confirmed our provisional FPA position on the project's costs, we will ensure that this is reflected accurately in our FPA allowance in the CFFM1. The provisional cap and floor levels for the project are determined via the CFFM1.

Requirements for the FPA submission

2.27. The FPA submission should be well-structured and evidence based. It should provide a robust case for the costs presented, which should be disaggregated as much as practically possible to ensure that we are able to complete a thorough review of the project's costs.

2.28. We expect developers to engage with us as early as possible leading up to their FPA submission to ensure that the FPA submission that we receive is as we expect. The submission should be in line with our RIGs, and, unless otherwise agreed with us, developers should submit costs using the latest published version of the Cost Assessment Template ("CAT").[5]

2.29. The submission should comprise of four main parts:

2.29.1. Project narrative;

2.29.2. Cost Assessment Template;

2.29.3. Risk register; and

2.29.4. Supporting information.

2.30. Appendices 1 and 2 provide further information on each of these four points and the specific details that we require.

Annual Reporting

2.31. Following the FPA decision, the developer is required to submit annual reports during the construction phase, including details on any design, schedule or cost variations from those set at the FPA. These must contain detailed financial information and explanations and must be submitted to us in line with the timing and content requirements set out in the project's licence.

2.32. The developer needs to maintain high quality financial records and evidence of expenditure during construction.[11] Part of this information will be included in the annual reporting. As a minimum the developer will need to:

2.32.1. Ensure a transparent paper trail of expenditure throughout the project's construction.

2.32.2. Clearly differentiate between expenditure within the original contract and any variations. If we are unable to distinguish the expenditure, we may assume it is related to items already assessed at the FPA and therefore these costs will not be included in the calculation of the cap and floor.

2.32.3. Provide evidence for all expenditure. We may choose to conduct a forensic analysis of the developer's costs to ensure the traceability and substantiation of the cost submission. Items which cannot be evidenced (eg, no invoice and/or proof of payment) may be disallowed by us entirely.

2.33. All changes in costs will need to be transparently documented, against the scope of works and expectations at the FPA, so that they can be assessed separately from FPA items. In addition, the link between these cost changes and FPA risk allowance should be noted within the annual submissions. These costs will need to be evidenced and documented in the same reporting year in which they occurred.

2.34. If any risk-related cost variances arise, only efficient costs will be allowed. In addition, these must relate to cost areas reflecting the scope determined in our FPA decision.

[11] Developers should use the same accounting policies as in the preparation of the regulatory financial statements, in accordance with UK Generally Accepted Accounting Practice (GAAP) or International Financial Reporting Standards (IFRS), unless otherwise stated.

We expect the developer to take decisions, in response to risk, based on evidence. It is the developer's responsibility to prove that the costs incurred to implement such decisions were efficient. Appendix 2 provides further information on risk-related eligibility.

2.35. During our assessments of the annual reports, which may include an SQ process, we will review the information presented, evaluate any cost changes and any items we noted to review as part of the FPA. We will ask all necessary questions through recorded SQs and discuss with the developer any costs that need an explanation. We will close our review by providing a brief summary of our conclusions to the developer.

2.36. Although the annual submissions are a requirement, their review is an informal part of the cap and floor process. Therefore, the positions that we present during our annual assessments are subject to change and will not be finalised or confirmed until the PCR stage.

Post Construction Review (PCR)

2.37. The PCR is the final review stage of our cap and floor regime. The primary aim of the PCR is to set the final cap and floor levels for the project.

2.38. At the FPA, we present our view of the economic and efficient costs to feed into the cap and floor levels, based on the information available to us at the time. For many reasons, the outturn costs may be different to the values set at the FPA. At the PCR stage we will update the FPA's provisional cap and floor levels to reflect our final view on the project's economic and efficient costs.

2.39. At the PCR, we will assess aspects of the project's submission that we did not fix at the FPA stage. Only costs considered uncertain at the FPA stage and/or not assessed at FPA are eligible for review at the PCR stage.

2.40. Further to the above, any changes in cost must be outside of the developer's control and align with the principles and requirements set out in Chapter 3 and Appendix 2 of this document. We will continue to assess such costs at the PCR and will allow or disallow these as necessary.

2.41. We may choose to conduct a forensic analysis of costs, to ensure the traceability and substantiation of the cost submission. We may use this analysis to help establish the final PCR values for the project.

2.42. The result of the PCR will be an update to the cap and floor levels in the interconnector licence, which will be the final cap and floor values for the duration of the regime. The cap and floor levels may change because of an opex reopener[12] or our re-assessment of decommissioning allowance at the request of the licensee at any point over the Regime Duration.

Timing of the PCR

2.43. The developer is required to give at least six months' notice of its intention to make a PCR submission. The submission should be sent to us at the earlier of the following milestones:

2.43.1. a date on which between 85% and 95% of development and capital expenditure, excluding interest during construction (and any snagging retention), has been committed to the development and construction of the interconnector; or

2.43.2. the full commissioning date.

2.44. A different PCR start date may be agreed between us and the project developer, provided that this is in line with the developer's licence.

2.45. We think that at the time when 85-95% of spend is committed or the commercial operations have started, it is reasonable to expect that the majority of works would have been completed.

2.46. As part of the annual submissions and related discussions, the developer should provide us with regular estimates on when they expect to achieve the two milestones mentioned above. This will ensure that both us and the developer have sufficient time to prepare for the PCR submission.

2.47. During this preparatory work we may also produce and issue a project-specific PCR guidance document for the developer, reflecting the scope determined in our FPA decision,

[12] As set out in the special conditions of Cap and Floor licensees' licence, the opex reopener can be triggered once, either by the licensee or by the Authority, not earlier than 10 years into the licensee's interconnector operation.

and regularly engage with the developer to ensure that they have the required documents in place, ready for the submission.

2.48. After completing our initial review of the submission, and once we are satisfied that we have all of the information that we need for our assessment, we will aim to publish our PCR decision within six to nine months.

Required documents

2.49. We expect the PCR submission to follow a similar format to the project's FPA submission. The submission should be presented in three main parts:[13]

2.49.1. Project narrative;

2.49.2. Cost assessment template;

2.49.3. Supporting documentation.

2.50. Appendices 1 and 2 provide further information on each of these three points and the specific details that we require.

2.51. As a minimum, these should contain:

2.51.1. The final development and capital costs of the project,[14] including a clear indication of any cost changes since the project's previous annual submission;

2.51.2. A detailed overview and breakdown of all cost items that were not assessed as part of the FPA, as noted in the relevant FPA decision;

[13] The risk register is not seen as one of the key parts of the PCR submission, as we expect risks to be at zero, or close to zero, at the time of the PCR.
[14] If some risks materialise shortly after PCR submission, we might allow inclusion of these costs into the PCR up to a certain cut-off point. This cut-off point will be discussed with the developer prior to the PCR submission.

2.51.3. Contracted prices or well-evidenced estimates of the operational and maintenance costs of the project;

2.51.4. The replacement costs of the project; and

2.51.5. The decommissioning plans and costs of the project.

The PCR Process

2.52. As a guide for developers, we expect our PCR process to comprise the following aspects.

2.53. *Developer engagement* - discussions between the developer and Ofgem will be held throughout the PCR process to ensure that we understand the rationale behind the submitted costs, as well as the project's activities. This also provides transparency to the developer and ensures that they are aware of our reasoning if, and when, we make any adjustments to their submitted costs. We would also encourage developers to engage with us in the months leading up to their PCR submission to ensure that the submission we receive is of the quality that we expect.

2.54. *Initial review* - an initial review of the PCR submission by us to ensure the necessary information has been provided. The duration of this initial review period is dependent on the quality and completeness of the information submitted.

2.55. *Full information review, including SQs* - once we are satisfied with the developer's submission, we will thoroughly review costs to determine an efficient allowance. This will involve rounds of SQs between us and the developer to capture any clarifications on project specific issues and to ensure we have a clear and complete basis for our assessment. We will use the set allowance to inform the final cap and floor levels. We may use technical consultants to support our analysis; in such an event, we would expect the developer to co-operate fully with any consultants in order to help us arrive at our view of efficient costs. This is a key stage in the PCR process.

2.56. *Public consultation process* - Our PCR, including our views on efficient cost allowances and resulting provisional cap and floor levels, will be subject to public consultation. We would expect to consult on the PCR for a period of at least 28 days. Whilst this is our current expectation, we may conduct an eight-week consultation if required.

2.57. *PCR decision* – we grant provisional cap and floor levels for each project at the FPA stage. At the PCR decision stage, we will confirm the efficient cost allowances for the project and the resulting final cap and floor levels.

2.58. Once we have confirmed our final position on the project's costs, following our PCR, we will ensure that these accurately reflect our cost allowance in the CFFM1. The final cap and floor levels for the project are determined via the CFFM1. We will subsequently issue a direction to update the preliminary cap and floor levels, specified in the interconnector licence, with the final cap and floor levels for the project.

2.59. The costs established at this point are final and we will not revisit our position on these. However, the cap and floor regime includes an option to review opex after ten years as a limited reopener. A licensee can also request re-assessment of decommissioning allowance at any point over the Regime Duration.

Annual Reporting: Operational Phase

2.60. As with the construction phase of the project, during the operational phase, interconnector developers are required to provide us with an annual submission.

2.61. There is a limited scope for cost assessment of these annual reports. However, this information allows us to:

2.61.1. monitor a project's operational costs, revenues and availability performance in each year of the regime;

2.61.2. inform the revenue assessment occurring at the end of each Assessment Period of the regime (occurring every 5 years in the default regime or annually in a variation to the default regime) where we determine whether payments are due to, or required from, consumers; and

2.61.3. inform our determination of:[15]

[15] The defined terms referenced within this section are defined in the relevant licence.

2.61.3.1. Allowed Outages;

2.61.3.2. Availability reductions due to Exceptional Events;

2.61.3.3. Income Adjusting Events;

2.61.3.4. Variations in Market Related Costs, and in Non-Controllable Operating Costs; and

2.61.3.5. Within Period Adjustments (if applicable).

2.62. The operational annual submissions also enable us to monitor the performance of an interconnector and ensure that the project is able to finance its activities and obligations, as well as to monitor compliance requirements under Standard Licence Condition 25 of the Interconnectors licence.

2.63. If a developer's submission includes a claim, or claims, for Exceptional Events and/or Income Adjusting Events, we will undertake a thorough assessment of these claims as part of our review of the annual submission.

2.64. The submission should be made to us in line with the project's licence. The submission should also include a clear update on the project's asset health.

2.65. The availability and operational cost information will be input into the Cap and Floor Financial Model 2 (CFFM2). The model is the main tool used to conduct the revenue assessment at the end of each Assessment Period.

3. Cost Assessment Approach

Section summary

This section provides an overview of key aspects of our assessments.

Introduction

3.1. The cost assessment process analyses the developer's cost submissions across the following cost categories:

3.1.1. development expenditure (devex);

3.1.2. capital expenditure (capex);

3.1.3. operational expenditure (opex);

3.1.4. replacement expenditure (repex); and

3.1.5. decommissioning expenditure (decommex).

3.2. Throughout the various stages of the cap and floor regime, we will review each of these cost categories to ensure that the costs that are used as inputs to calculate the project's cap and floor levels are the economic and efficient costs associated with delivering, operating, maintaining and decommissioning the interconnector.

3.3. As detailed in Appendix 1, unless otherwise agreed with the developer, we require the developer to submit their devex and capex costs in nominal terms and that the post-construction costs should be submitted in an appropriate real price base.[16]

[16] This price base should be agreed with us prior to any submissions.

Benchmarking and cost comparisons

3.4. We conduct benchmarking analysis to aid the cost assessment process and use the results to signpost the key areas to focus on during our analysis.

3.5. Below is a brief description of the benchmarking exercise and cost assessment approach for each of the above cost categories.

3.6. The benchmarking exercise consists of comparing the developer's submitted costs with those of comparable projects, ensuring that we take into consideration aspects such as the technical characteristics of the project. The costs are disaggregated to enable us to analyse costs on an asset level e.g. onshore cable capex.

3.7. Our analysis demonstrates how the costs submitted by the developer for the various assets compares with similar projects. This enables us to identify areas of the developer's submission where costs are higher than anticipated.

3.8. The main purpose of our benchmarking is to guide our assessment, rather than as an absolute determinant of allowable costs. Where this highlights specific costs as a concern, further analysis is conducted to determine whether these costs have been estimated, or were incurred, in an economic and efficient manner. Developers are given the opportunity to explain why their costs may differ from industry averages derived from similar projects. In the absence of appropriate evidence to justify these differences, we may use benchmarking data to inform our view of economic and efficient costs.

3.9. In addition to the benchmarking of the project's assets, we also conduct further analysis to compare other aspects of the developer's submission to our datasets of historical projects. We undertake high-level comparisons of aspects such as resource costs, risk budget, development costs, operational costs, replacement costs and decommissioning costs. We also undertake comparisons of more granular costs, and discuss any concerns or issues with the developer.

3.10. We will also review the presented technical submission to ensure that the solution presented by the developer is justified. We expect developers to design the solution in-line with the most economic whole life value for these assets. We expect the use of Cost Benefit Analysis (CBA) and technical reviews to feed into the design efforts to meet the system, statutory and stakeholder needs. As part of our benchmarking and cost comparisons work we

may ask to see the developer's Front-End Engineering Design (FEED) works as part of our review.

Development expenditure (Devex)

What do we mean by devex?

3.11. Before beginning construction, the developer would usually undertake a FEED process and begin the process of obtaining the relevant consents and permissions required for constructing and installing the assets. For example, detailed surveys of the seabed will be required to ensure that the assets avoid existing apparatus or seabed wreckages, and an environmental impact assessment will be conducted to satisfy statutory requirements.

3.12. These activities usually take place prior to the developer taking its final investment decision (FID). We refer to these costs, as well as the resourcing costs associated with these activities, as development costs (devex).

Assessment of devex costs

3.13. As with all project costs, the developer should ensure that they are able to explain and justify all devex costs. Developers need to provide us with a detailed breakdown of these costs so that we are able to assess their efficiency.

3.14. Our assessment of the efficiency of devex costs includes the following steps:

3.14.1. ensuring that all costs submitted by the developer are required for the efficient delivery of the project;

3.14.2. where relevant, comparing the project's devex costs to historical projects; and

3.14.3. reviewing the devex resource profile, ensuring that the developer is able to justify the duration of the development period.

3.15. We expect that for the majority of projects, a significant percentage of their devex costs would have been incurred by the time of their FPA submission to us. We will therefore undertake a thorough assessment of devex costs during the FPA, with the aim of providing a firm allowance on this cost area as part of our FPA decision.

3.16. If these costs change at all following our FPA decision, we may update our devex allowance as part of the PCR.

Capital expenditure (Capex)

What do we mean by capex?

3.17. The development and construction of interconnector assets requires developers to enter into a variety of design, delivery, construction and installation contracts. Typically, the main assets that are constructed are subsea cables, onshore cables and converter stations. We define capex costs as the costs involved in the delivery, construction, installation and commissioning of assets associated with the interconnector transmission system.

3.18. At the FPA stage, capex costs are classified into firm and uncertain capex costs. Firm costs are likely to include costs associated with signed contracts, covering the cost of aspects such as the main assets and insurance. Uncertain costs may consist of the developer's resourcing costs, areas where contracts are yet to be awarded and contingency costs.

Assessment of capex costs

3.19. This section sets out a number of elements which we typically consider when assessing whether the capex costs have been economically and efficiently incurred.

Review of Solution

3.20. We expect the developer to provide clear justification and evidence in their submission for the selected technical solutions presented. Where the developer is unable to provide sufficient evidence or justification, we may utilise our benchmarking analysis to inform our view on the project's efficient costs.

Approaches to procurement and contract management

3.21. Efficient procurement processes can make a significant contribution to controlling costs. In considering the extent to which costs incurred are economic and efficient, we review the developer's procurement and contract management processes. Developers will need to provide us with appropriate documentation relating to the process that was followed and a detailed justification of the outcome. The developer's submission will need to include a detailed overview of their main procurement process(es) and explanations of all of the key

decisions that were made as part of the tender exercises. If potential tenderers withdrew from the process, we will need to understand the reasoning behind this.

3.22. To date, interconnector project developers have preferred Engineering Procurement and Construction (EPC) contracts. We do not have a preference as to the contracting approach chosen by developers. Whether the developer opts for a multi-contract approach or turnkey contract(s), they should provide disaggregated cost data if requested to do so, to allow us to assess if the costs incurred are economic and efficient. Essentially, this means that we require the developer to provide a breakdown of the total costs associated with the relevant contract allocated to each cost item reported in the cost assessment.

3.23. We expect developers to manage their contractors effectively. They should provide evidence that project management or contract control processes are put in place up front (i.e. before the contract is signed) to minimise cost overruns. Developers should also be able to evidence how their contract and cost control processes are implemented through the project lifespan. If a lack of robust contract cost management leads to increased costs in the development and construction of the transmission assets, we may conclude that such costs were not economic and efficient and may not, therefore, be allowed.

3.24. Where developers incur additional costs to complete or rectify works owing to a contractor's failure to deliver (including costs incurred in replacing failing or defaulting contractors), we would expect the developer to seek recompense through the appropriate contract(s) rather than through the cap and floor regime. Where such a contractual settlement has been reached, we would expect the developer to be able to explain the rationale for the settlement and clearly identify the damages, the value proposed by the contractor and the settlement reached, including details of the negotiations and justification of the settlement sum. Any sums recovered through such claims may be reflected in an adjustment at the PCR.

Treatment of contingency

3.25. Up until its PCR submission, it is likely that a project will have significant areas of cost uncertainty.

3.26. The uncertain nature of these cost areas is one of the reasons why the cap and floor levels set at the FPA are provisional. As part of our FPA, we may include placeholders to cover what we deem to be economic and efficient values for these costs. At the PCR, we may assess

the actual spend in relation to these costs, as they become firm, and update the provisional cap and floor placeholders accordingly.

3.27. The cap and floor levels should not include risk allowances that result from inefficiencies. Furthermore, for risks which consumers are underwriting, the developer should have appropriate mitigation measures in place.

3.28. At the FPA stage, we will provide the developer with an appropriate amount of contingency to cover the additional expenditure that the developer may have to incur between the FPA decision and its PCR submission. The aim of this is to ensure that the total costs that we use for the provisional cap and floor levels at the FPA stage represent an accurate representation of the final outturn costs for the project.

3.29. We will not include costs associated with High Impact Low Probability (HILP) risks as part of the FPA contingency allowance. If a HILP risk event occurs during the construction of the project, we will review the event and its costs as part of the relevant annual assessment or PCR. If the risk event is deemed to be eligible for funding, in line with the criteria set out within Appendix 2, we will provide an economic and efficient allowance for the event.

3.30. In order to review the project contingency at the FPA, the developer will need to provide us with a copy of the project risk register, as well as a detailed overview of the project's risk management strategy and a clear description of the project's process for estimating the risk costs. The risk register should clearly demonstrate the assumptions that the developer has made for each risk item. This will enable us to review the appropriateness of each risk item and come to a view on an economic and efficient allowance for the project's contingency. Further details on our expectations and requirements are set out in Appendix 1.

3.31. As the project progresses through construction, we expect the developer to provide us with an update on its contingency budget as part of each annual submission. This update should include the latest view on each risk item that formed the initial contingency, including how and why its value has changed since the previous submission.

3.32. We monitor the project's risk profile and materialised risk expenditure throughout the annual submissions. If a developer has incurred cost increases, such as Variation Orders (VOs) during the construction of the project, we expect the developer to clearly explain how this cost was accounted for within the original contingency budget.

3.33. We may take a view on the materialised risks as part of our annual assessments, applying the principles for risk eligibility that we set out in Appendix 2. However, our final position will not be confirmed until the PCR stage.

Variation Orders (VOs)

3.34. VOs are costs that have not been planned but that occur following an unexpected event resulting in additional costs in relation to one of the project's contracts. We will undertake an assessment of all VOs to ensure that only economic and efficient costs are reflected within the final cap and floor levels.

3.35. As part of our assessment, we will review:

3.35.1. the root cause of the VO to ensure that it was outside of the developer's control and that the developer had undertaken all efficient mitigating actions to prevent these additional costs being incurred;

3.35.2. the risk register that the developer would have presented to us at the FPA stage, to understand how the developer had previously perceived the risk associated with this cost area;

3.35.3. all costs associated with the VO, including any rates that were used by the contractor to calculate the final cost; and

3.35.4. the developer's process for reviewing the VO, including where it challenged the contractor on the eligibility of the VO under its original contract.

3.36. We will assess VOs as they arise during the project's annual submissions. We will then make a final decision on these costs at the project's PCR.

Contract options

3.37. Options are agreed between the developer and contractor as part of the project's contracts. Each option will include a clear overview of the works associated with it, a cost for these works, as well as an expiry date. The costs associated with each option are not included within the main contract price. If the developer chooses to 'exercise' or 'call-off' an option, it will be required to pay the contractor for the costs associated with the completion of these works, on top of the costs agreed within the main contract itself.

3.38. Aspects such as surveys may play a significant role in determining if these options will be exercised during the delivery of the project.

3.39. We will undertake an assessment of all exercised options to ensure that only economic and efficient costs are reflected within the final cap and floor levels.

3.40. As part of our assessment, we will review:

3.40.1. the root cause of the option to ensure that it was outside of the developer's control and that the developer had undertaken all efficient mitigating actions to prevent these additional costs being incurred;

3.40.2. the risk register that the developer would have presented to us at the FPA stage, to understand how the developer had previously perceived the risk associated with this cost area;

3.40.3. all costs associated with the option, including cross-referencing the option cost with the original contract; and

3.40.4. the developer's process for choosing to exercise the option.

3.41. We will assess options as they arise during the project's annual submissions. We will then make a final decision on these costs at the project's PCR.

3.42. As options have an expiry date, the developer may need to renegotiate their cost if they choose to exercise them following the expiry date. If this is the case, the developer will need to explain to us the reason why the option was exercised following the expiry date with a justification for any cost increases that have occurred.

3.43. If a developer has exercised an option before their FPA submission, we may include the economic and efficient cost for this option as part of our FPA allowance. We will not include costs associated with options that are yet to be exercised as part of our FPA allowance, unless the developer is able to prove to us that this option will certainly be exercised and that its costs are economic and efficient.

Spares

3.44. Where spares for the interconnector assets are deemed necessary, we will include the economic and efficient costs associated with these, evaluated on a case by case basis, as part of our allowed costs.

3.45. As part of our assessment we will ask developers to provide us with justification regarding the quantities of spares that they have procured for the project and for the project's spares strategy. We will need an explanation for why the developer believes that these spares are required for the efficient delivery and/or operation of the interconnector.

3.46. Particular justification is needed in relation to spares for components that have a short delivery time period and for components that have a high level of reliability.

3.47. Referring specifically to spare cables, the developer must clearly set out to us the length of spare cables that it has procured for the project, including an explanation for why it believes that this is an appropriate and efficient amount of spare cable.

3.48. For material cost items, we may request a justification in the form of a cost benefit analysis, and analysis on the failure rate of that particular item. If a cost benefit analysis, or equivalent work, has not been undertaken to justify the inclusion of certain spare components, we may remove the costs associated with these spare components from our allowance.

Land costs

3.49. Interconnectors require a converter station and land cables. Land is required to locate the converter station and consents and easements are required for the land cable route. Developers either purchase or lease a plot to locate the converter station and they secure lease agreements for the land cable. Typically, developers also need to compensate land owners for disruption caused by construction activities. We can consider including these costs, provided they were incurred economically and efficiently. Developers are advised to confirm their approaches for all of these activities and provide the appropriate documentation, if requested.

Hedging of exchange rates or commodity prices

3.50. We recognise that developers will adopt different approaches for paying contracts in foreign currency or for agreeing volatile commodity prices; for example, the developer may

hedge by fixing the forward exchange rate or commodity price in advance. The payment of their contracts should then be based on such fixed rates.

3.51. Hedging can avoid the developer incurring higher costs than anticipated and ultimately protect consumers against the cost increases that would otherwise occur. We therefore encourage hedging of all main contracts if a developer considers it is efficient to do so. A developer must follow a process that is transparent and well documented. A developer must also provide reasoning on the purpose and timing for entering into a hedging agreement relative to the date of signing the main contract(s) or any other contracts that the hedge product will cover.

3.52. Where a developer has hedged, we expect the cost submission to apply these rates consistently across costs incurred throughout the development and construction period.

3.53. A developer may choose not to hedge costs which are small in value, and/or unpredictable in timing. We will review such decisions on a case by case basis and, if we agree that it was not appropriate to hedge these costs and find that the developer acted in an economic and efficient manner, we will accept the costs at the sterling cost paid at the spot rate prevailing at the time of payment.

Insurance

3.54. We recognise that it is prudent for developers to procure insurance to cover events that may occur during the project's construction and operation. We therefore allow an economic and efficient cost for procuring appropriate insurance for the interconnector. When assessing cost efficiency, we may compare the cost of insurance, on a specific project, against that which we have seen on comparable projects to date, taking into account market conditions and project-specific issues.

3.55. We will continue to assess the appropriateness and efficiency of a project's procured insurance on a case-by-case basis, taking into consideration any evidence that is presented to us by the developer.

3.56. The developer must ensure that it is able to clearly explain the need for each of the insurances that it has procured and that it provides tangible benefits for consumers. If the developer is unable to provide this justification, then we may remove the costs associated with procuring that insurance from the project's allowed costs.

3.57. It is the developer's responsibility to ensure that it has adequate and appropriate insurance to recover all costs in the event of an insurable event occurring. Therefore, we do not expect the developer to seek cost recovery through the cost assessment for costs that are either unrecovered or disputed from insurance claims.

3.58. If a claim arises, due to an event that occurred during the construction of the interconnector, insurance deductible costs that are assessed as economic and efficient will be included within the cap and floor levels.

3.59. In the event of multiple claims, the cost of each deductible will be allowed in the PCR, provided that these claims refer to economic and efficient costs and relate to incidents that occurred during the construction period.

Treatment of cost overruns

3.60. The capex costs that developers incur during the construction of the project may vary from the values presented to us at the project's FPA. As discussed in Chapter 2, we will review any cost variations as part of our PCR of the project.

3.61. When significant construction cost overruns arise, we expect developers to discuss these matters with us in a timely manner. In such circumstances, we may call upon advisers to support our assessment of these costs, to inform our decision on whether costs are economic and efficient and whether they should be included in the cap and floor values.

3.62. We will consider each case on a project specific basis, as issues that arise may not be common across projects. To inform our decision-making, we may instruct our advisers to liaise closely with the developer, to assist us in understanding, amongst other things, the decisions and mitigating actions taken.

3.63. For all significant cost changes, to facilitate the conclusion of the cost assessment process in a timely manner, developers are advised to provide, as a minimum, the following supporting information:

3.63.1. a detailed explanation of each cost overrun;

3.63.2. information on the root cause(s);

3.63.3. a chronological order of events;

3.63.4. details of all solutions that were considered;

3.63.5. an overview of the chosen solution(s) with technical justification (where relevant);

3.63.6. the associated risk assessment;

3.63.7. details on whether the event was insurable; and

3.63.8. evidence of claims and/or supporting board papers.

3.64. Without this information, we may be unable to determine whether the costs are economic and efficient, which may cause a delay to the cost assessment process and exclusion of unjustified cost overruns from the cap and floor values.

Cable surveys and risk assessments

3.65. The efficient and timely installation of interconnector cables is dependent on a number of factors, for example, effective pre-installation surveys and risk assessments undertaken by the developer or its contractor. Cost overruns may occur as a consequence of the cable installation process. The reasons for such cost overruns are numerous and relate to, amongst other things, technical difficulties, bad weather and 'waiting on weather' costs. However, an emerging theme in such cases is the extent and quality of seabed surveys and risk assessments undertaken by the developer, or its contractor, prior to the cable installation process. We understand that this information is relied upon in determining which cable laying equipment is used during the installation process. If the seabed conditions are not as expected in the survey, this can lead to significant cost overruns, which a developer may seek to include in their cost submission.

3.66. We will examine cable installation cost overruns closely, with support from our advisers as necessary. A key issue in determining whether these costs are permitted, is to understand the steps and actions taken by developers to mitigate the likelihood of cost overruns. The question, of whether or not to undertake detailed seabed surveys, is a commercial decision for each developer. Where a developer decides not to do so, it is liable for the costs arising from that decision.

3.67. Developers should also provide evidence that sufficient pre-installation risk assessment and mitigation procedures are in place, prior to the start of the cable installation works. A

submission of the project's risk register would normally form an integral part of the evidence base. If, after investigation, it is shown that costs are attributable to inefficient pre-installation risk assessment procedures or mitigation procedures, then these costs will not be allowed at the PCR.

3.68. A publication by the Offshore Wind Programme Board recognised that effective surveys can reduce the risks and costs associated with cable installation.[17] The publication highlights good practice for marine survey activity and we suggest developers to review the guidance presented in this document to understand good survey practices. This should create greater consistency across the industry and improve standards. This could also reduce the risk of project delays resulting from insufficient information on cable burial conditions.

Stakeholder events

3.69. We recognise that project developers will need to arrange various events throughout the development and construction of the interconnector, and we acknowledge that a number of these events will either be essential to the delivery of the project, or will ensure that the project is delivered in a more efficient manner.

3.70. However, if a developer is unable to demonstrate to us, as part of our cost assessment, that an event is essential or provides a tangible benefit to the delivery of the project, then we will not include the costs associated with this event as part of our cost allowance.

Operational Expenditure (Opex)

3.71. Opex costs relate to the activities that the developer will undertake to manage, operate and maintain the interconnector during its operational phase. This is to maximise the availability of the interconnector and to minimise unplanned outages.

3.72. Opex costs are split into three main categorise, which are listed and described below.

Controllable costs

[17] See "Overview of geophysical and geotechnical marine surveys for offshore wind transmission cables in the UK", Offshore Wind Programme Board, September 2015

3.73. These costs are within the control of the developer. We expect controllable opex costs to include aspects such as:

3.73.1. the main service agreement for the maintenance of the project's assets;

3.73.2. resourcing costs associated with the ongoing management and operations of the interconnector;

3.73.3. commercial cost elements associated with the interconnector's market access and electricity trading; and

3.73.4. insurance costs for the interconnector's operational phase.

3.74. As with all other costs that are subject to our assessment, we expect the developer to ensure that they have undertaken the appropriate processes to ensure the efficiency of these costs, such as undergoing a competitive tender process, where relevant.

3.75. Where it is not possible or appropriate to undertake a competitive tender process, we expect the developer to demonstrate to us that they have incurred or estimated costs in an efficient manner, and that they have explored all relevant options to ensure the efficiency of these costs.

3.76. We expect that costs such as the project's operational insurance and its main service agreement to be firm at the time of the PCR. However, we anticipate that a significant proportion of the project's controllable opex costs will still be estimates; for example, resourcing costs and costs associated with the ongoing management and functioning of the interconnector.

3.77. Therefore, a significant focus of our controllable opex review will be on the robustness and appropriateness of the assumptions that the developer has applied in order to estimate these costs. If the developer is unable to justify and/or substantiate the assumptions that it has made, we may apply our own assumptions to these costs to ensure that the costs that are reflected within the cap and floor levels are economic and efficient.

Non-Controllable costs

3.78. The exact areas that will be considered as non-controllable opex costs will be defined in the developer's licence. However, non-controllable costs are likely to refer to costs associated with:[18]

3.78.1. Crown Estate Lease Fees;

3.78.2. GB Property Rates; and

3.78.3. GB Licence Fees.

3.79. Despite the uncontrollable nature of these costs, in order for the relevant values to feed into the cap and floor levels appropriately, the developer must provide the relevant supporting evidence to substantiate these costs. This is so that we are able to confirm the nature of these costs and to ensure that they are well evidenced.

Market Related Costs

3.80. As part of its PCR submission, we expect the developer to provide an indicative view on the Market Related Costs (MRCs) that it expects to incur during the operation of the interconnector.[19]

3.81. We will not assess MRCs during the PCR. MRCs are treated as partial pass-through costs and, as such, these costs will be netted off the developer's gross congestion revenues on an annual basis. Net congestion revenues will then be assessed against the cap and floor levels every five years. Where net congestion revenue is between the cap and floor levels, MRCs are borne by the developer. If, however, net congestion revenues are below the floor, then the developer would be eligible for a floor payment.

Replacement Expenditure (Repex)

[18] The defined terms referenced within this section are defined in the relevant licence.
[19] Market related costs will be defined within the developer's interconnector licence. It is likely to cover costs such as error accounting costs, firmness costs and trip contract costs.

3.82. Repex cover costs that the developer expects to incur in replacing essential equipment to ensure continued functionality of the interconnector during the 25-year cap and floor regime.

3.83. The developer's repex costs may not be fixed at the PCR stage, but as with the other post-construction costs, we expect these costs to be robust at this stage.

3.84. If the developer is yet to award contracts or agree costs for the project's repex, it should have undertaken extensive analysis and research to ensure that its PCR estimates are robust and substantiated by relevant evidence.

3.85. As part of its submission, the developer should detail the project's strategy in relation to repex, including:

3.85.1. The process it has in place to determine when to replace certain assets, and the subsequent steps it would take. This will include the assumptions based on present and future technology;

3.85.2. An overview of all relevant asset condition monitoring it has in place, this will include the planned interaction between the repex plan and condition monitoring;

3.85.3. Analysis that has been undertaken to model the impact of different repex solutions on the long term condition of the project and its assets; and

3.85.4. Evidence to prove that the proposed solution is the most robust and efficient solution available to the developer.

3.86. If the developer has engaged with consultants to inform its view on repex, it should share any associated reports or conclusions with us as part of its submission.

3.87. Repex is treated as a standalone operational RAV addition (rather than being part of opex), meaning there is no provision for adjustments to our repex allowance following our PCR decision.

Decommissioning Expenditure (Decommex)

3.88. As part of its PCR submission, we expect the developer to provide a detailed overview of the project's decommissioning strategy and the costs associated with this strategy.

3.89. One of the key considerations of our decommex review is the legislative requirements that the developer is subject to in relation to the decommissioning of the project's assets. Therefore, the developer should provide a clear overview of these requirements within its submission, in particular if there have been any legislative changes since any previous submissions to us.

3.90. Further to this, the developer should ensure that it has clearly demonstrated the process that it has followed to agree or estimate the costs that it has submitted in relation to decommissioning.

3.91. We will review this information to ensure that the developer has followed a diligent process, in line with all relevant legislation, and that its costs are economic and efficient.

3.92. Our final cap and floor levels will include an efficient allowance for decommex, based on the information that is available to the developer and to us at the time of the PCR decision.

3.93. However, legislative requirements could change before the end of the developer's cap and floor regime and could lead to additional or reduced decommissioning costs which the developer would not have foreseen. The developer's licence would provide for adjustments to the cap and floor levels (whether upwards or downwards) in the event that a change in legislative requirements results in additional or reduced decommissioning costs agreed by the Authority.

Appendices

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Appendix 1 – Submission requirements

Overview

As set out in the main body of this document, in order for us to be able to undertake our various cost assessments, we need to be provided with clear and robust evidence for the project costs. This appendix provides guidance on how developers should prepare their submissions for our review, and some of the key documents that we require.

As we review a developer's submission, we are likely to request further documents to ensure we have a complete understanding of the project and its costs.

We expect each of the developer's FPA and construction annual submissions to include four key elements: the project narrative, the cost assessment template, a risk register and supporting information. The PCR submission should include the project narrative, the cost assessment template and supporting information. The exact requirements for these elements will differ slightly across the different submissions.

Project Narrative

The purpose of the narrative is to explain the structure of the submission, summarise the project costs and tender process at a high level and provide a general overview of the project. This document should provide a clear rationale for all major project decisions that have been made and any assumptions that impact project costs, should be clearly explained in the narrative. It should be a clear document that provides complete transparency on the project's history and its costs.

The table below sets out the main requirements for the narrative document. However, this list is not exhaustive. Where there have been any notable changes to the project, these need to be clearly explained and justified in the relevant submission. For instance, if the project changes a part of its converter station design shortly after our FPA decision, this should be detailed in the developer's first annual submission to us.

Requirements	FPA	Annual Submissions	PCR
An overview of the project and its history, as well as expected project timelines	✓	✓	✓
A detailed technical summary of the project, including justification for all major technical decisions	✓		
The legal form of the ownership and operational vehicle	✓		
A summary of the relevant tender processes, the selection criteria for bidders and an overview of key procurement decisions that have been made since the previous submission	✓	✓	✓
A clear comparison of the project's IPA and FPA costs. This should include an explanation of any significant cost deviation from the IPA cost submission	✓		
A clear overview of the project's cost progression, including any cost changes from the FPA through to the PCR.		✓	✓
A clear justification and explanation for all new costs or cost changes		✓	✓
Evidence that the costs are efficient, e.g. cost benchmarking, market testing, competitive tendering	✓	✓	✓
Information on where project revenues will be received, in which currencies and on what basis	✓		✓
Information on the currency that the project and company accounts are/will be denominated in	✓		✓
Details of any Parent Company Guarantees or Letters of Credit	✓		
Details of land ownership	✓	✓	✓
An overview of the project's risk management strategy, including details on key project risks and how risks are shared/allocated between Employer and Contractor	✓	✓	✓
An overview of the developer's resourcing costs for the development, construction and operation of the project	✓	✓	✓
A detailed description of the project costs, including an overview of any assumptions that have been made	✓	✓	✓
An overview of the cable route, including details of the landfalls and connection points at either end of the interconnector and how these locations were established	✓		
An overview of the converter station locations and how these locations were established	✓		

Cost Assessment Template

The Cost Assessment Template (CAT) is one of the key components of the submissions. The CAT enables us to view the project's costs at a glance, but also allows us to look at the details of the cost submission to understand the breakdown of costs across the project's various

assets. The CAT also provides us with the project's expenditure profile. Our view of the efficient expenditure profile will be fed into the project's Cap and Floor Financial Model (CFFM) to determine the project's cap and floor levels.

We expect developers to engage with us as early as possible leading up to their submissions to ensure that the submission that we receive is as we expect. The submission should be in line with our RIGs, and, unless otherwise agreed with us, developers should submit costs using the latest published version of the CAT.[5]

It is the responsibility of the developer to ensure that costs are correctly entered and allocated within the CAT. If any issues arise, the developer should contact us promptly to seek clarification. In addition to the CAT, the developer should submit the supporting spreadsheet(s) used to populate the CAT. These spreadsheets should clearly and transparently show how costs are transferred to the CAT e.g. from a particular contract.

The CAT includes devex, capex and post-construction costs. Devex and capex costs should be presented in nominal terms. Whereas, the post-construction costs should be reported in real terms; they should refer to a base year that is completed at the time of the submission.

Risk submission

The CAT includes a tab to detail the project's risk costs. However, we require further information as part of the developer's submission so that we can undertake an in-depth assessment of the project's risk.

As detailed above, as part of its narrative document the developer must provide an overview of the project's risk management strategy, including details on key project risks and how risks are shared/allocated between Employer and Contractor. The developer should explain why it believes that this allocation of risks is an efficient solution for the project. The developer must provide details of how the risk register has been derived and the process for monitoring and updating it. We expect developers to undertake detailed analysis (such as a QCRA) in order to determine an appropriate and efficient risk value of the project. As the project develops through the FPA stage into the annual reporting, the developer should update us on how the project's risks have evolved, clearly indicating where risks have materialised or been retired. As part of its PCR submission, considering that the majority of the construction work will be complete, we do not expect the project's cost submission to

include a value for risks. We expect that all risks should have materialised or been retired at this stage.[20]

As a part of its FPA and annual submissions, the developer must also submit the latest version of its risk register, which would have been used to populate the risks tab in the CAT. For each of the project's risks, the risk register must demonstrate, as a minimum, the areas outlined in the following table.

Item	**Description**
Project area	Which part of the project the risk relates to e.g. subsea cable.
Risk category	For example – weather downtime.
Description of risk	A description and rationale behind the risk, including: • An explanation of what the risk relates to. • Why it is appropriate for the risk to be included within the register/submission. • Whether or not the employer is solely responsible for this risk, or if it is shared with the contractor, as well as a justification for this decision. • If it is a shared risk, a reference should be made to the relevant contract clause.
Action	What actions have/will be taken towards the risk and how will the risk be monitored
Mitigations	What actions will/have been taken to mitigate the risk, with associated cost (estimates)
Risk identification date	Date when the risk was identified
Risk owner	Developer or shared
Risk owner rationale	Rationale why the party owning the risk has been identified as such
Risk expiry date	Date when the risk is due to materialise or expire
Associated costs	Minimum, most likely and maximum associated cost for the risk
Cost method	An explanation of the assumptions and/or calculations that have been used to derive the minimum, most likely and maximum cost values.
Probability	Probability of the risk occurring
Reference	Reference(s) to any supporting documents (or sections within documents) that will support the details set out within the risk register.

[20] At the time of the PCR submission, we expect the vast majority of the project's costs to be fixed, and the remainder to be based on robust estimates. Due to its timing, the PCR submission should not include any contingency costs.

Supporting information

Further to the narrative document, CAT and risk submission, we expect each developer's submission to include relevant supporting documents. These documents should be used to support and provide further context to the details that are set out in the three main parts of the submission.

The table below sets out the key requirements in relation to the supporting information. However, this list is not exhaustive. We may ask for further documents during our assessments.

Requirements	**FPA**	**Annual Submissions**	**PCR**
Supporting cost spreadsheet(s) (these should provide a clear and transparent reconciliation between the project's granular costs and the CAT)	✓	✓	✓
Resourcing profiles (including roles, FTEs and rates)	✓		✓
Any other form of analysis that acts as justification/evidence for major costs included within the submission	✓	✓	✓
All relevant documents from the main procurement process(es) (e.g. tender evaluation reports, original ITT issued, clear outline of award criteria, summary of entire bidding process and key decisions that have been made)	✓	✓	
Copies of all major contracts that have been awarded, including relevant pricing schedules (in Excel format)	✓	✓	
Copies of relevant consultants' reports (e.g. benchmarking of costs, UXO reports)	✓	✓	✓
A register of all other third-party reports associated with the project delivery	✓		

We will not normally require the developer to provide us with invoices as part of its submission. However, the developer must maintain such documents as we may request for these to be shared with us during our assessments, if we believe that it is appropriate and relevant.

Practical guidance for the submissions

All cost-related submissions should be submitted in Excel format.

Documents or reports should be submitted in Word or PDF document formats. The narrative should be submitted in both PDF and Word formats.

File/folder names should not contain any of the following characters in the title: % ~ & \ # / : * ? " < > | { }.

The folder structure of the submission should contain no more than three layers of sub-folders. The developer must submit an overall document register that clearly identifies all documents contained within its submission, and the location of each document within the submission.

The submission will be uploaded to *Huddle* by the developer, where we will be able to view and download all documents. Two weeks in advance of the submission, we should be notified so that shared Huddle spaces can be set up and arrangements agreed.

Appendix 2 – Risk-related eligibility at the PCR

This appendix provides an overview of the principles we apply when considering risk-related expenditure at the PCR stage.

Risk-related expenditure is allowed at PCR where the risk is foreseeable, but it would have been uneconomic to mitigate the entirety of it. We present the risk eligibility review process in Figure 2.

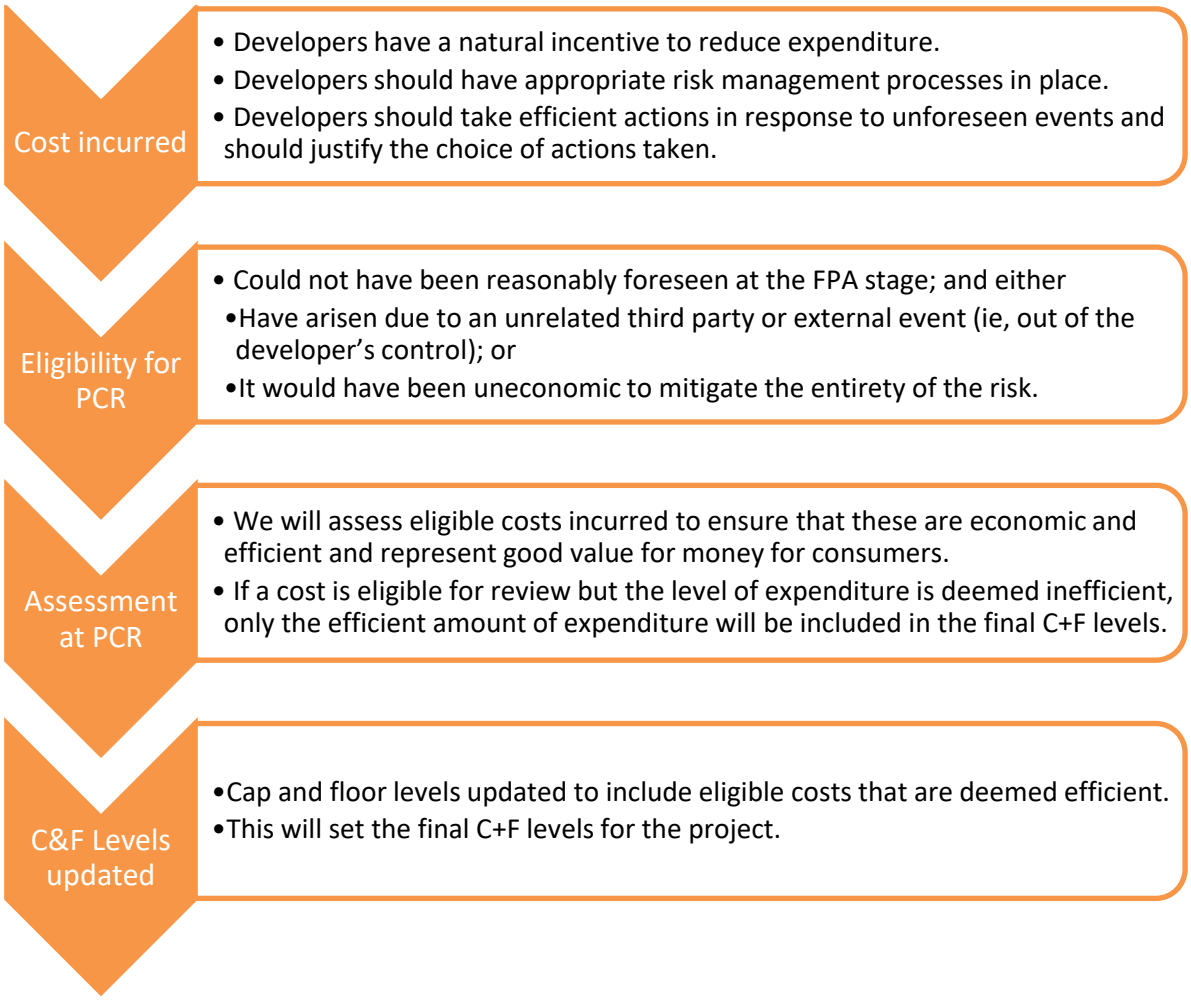

Figure 2 - Risk eligibility review process

Examples of risks

We recognise that interconnector projects are large, complex assets and that they often face unique construction risks on a case-by-case basis. This is why we have not sought to include a definitive list of risks that will or will not be eligible for assessment at the PCR stage. Not all

projects will face the same risks, and some projects may encounter risk-related expenditure that neither the project developers nor we could have foreseen.

The section below lists example of risks where we would expect related expenditure to be eligible, or ineligible for assessment at the PCR. The lists reported are non-exhaustive and it will be the responsibility of developers to demonstrate, in the PCR submission, that risk-related expenditure meets our eligibility principles.

Risks that we would expect to be eligible at PCR assessment:

a) Weather conditions (cable) – harsh weather conditions offshore beyond statistical expectations for that time of year.

b) Weather conditions (converter) – site conditions mean that construction is delayed beyond what could have reasonably been expected. This can cover excessive wind, flooding, snow, avalanche etc.

c) Soil conditions are significantly different to those indicated by the survey,[21] and therefore additional rock placement or ploughing/burial equipment is required.

d) Unexploded ordnance not detected by adequate surveys result in additional costs.[21]

e) The relevant Transmission Owner (TO) at either end of the interconnector changes the connection arrangements or requirements, which leads to new design requirements and/or delays.

f) Grid reinforcement works by the TO are delayed.

g) Additional remediation costs due to changes in legislation.

Risks considered on a case-by-case basis for eligibility at PCR assessment:

a) Contractors or other related parties fail to deliver on their contracted expectations or obligations.

b) Knock-on effects from contractor delivery of other major projects cause delays/additional costs.

[21] Assuming that the initial survey was conducted in line with industry good practice and therefore should have been deemed reliable. We will not be taking a view on the quality of surveys and therefore the onus is on project developers to ensure these are appropriate. We would expect the developer to have negotiated suitable rates in advance such that they are not a distressed buyer of services.

For both of the above examples, to be considered for inclusion in the PCR, we would expect the following circumstances to apply:

a) The additional incurred costs are in excess of contractual penalties.

b) The developer had adequate risk monitoring processes in place and took timely action to mitigate incurred cost.

c) It would have been uneconomic to insure against the scale of the contractor failure.

Examples of risks that we would expect to be ineligible for our PCR assessment:

a) Performance of the project organisation leads to delays or additional costs.

b) The cable or converter design is unsatisfactory, leading to additional costs or delays.

c) Cable or converters are damaged during transport (unless this is due to third party actions or weather events beyond usual expectations).

d) Cable laying vessels break down or are not available as scheduled.

e) Cable is damaged during manufacturing.

f) Cable damage during installation due to inappropriate practices/use of inappropriate equipment.

Our PCR assessment of eligible risk expenditure

We recognise that there is a strong incentive on developers to efficiently manage and minimise costs within the construction phase, and that this incentive extends to unexpected costs. However, we still think it is necessary to assess the costs incurred in dealing with unexpected events. This is to ensure that the costs have been efficiently incurred and represent good value for consumers.

We will look to ensure that proper process was undertaken, that risk-related expenditure is well-documented, and that costs incurred were not excessive for that type of action.

In addition, our dialogue with project developers throughout the construction stage, as part of our annual reporting process, should provide developers with an opportunity to ensure that costs (including in relation to risk events) are updated regularly and that sufficient supporting evidence is provided to us. Whilst we will not make any final decisions on cost variations (including risk-related expenditure) prior to the PCR stage, we expect developers to provide

us with justification as the project progresses. If we notice large variances from the planned expenditure, we may ask for further evidence during this annual process. We would also ask for further evidence and justification if the PCR submission differs from the iterative updates received as part of the annual reporting process.